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Introduction: reconstructing Proto-Indo-Anatolian and Proto-Indo-Uralic

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Like any other natural language, the mother language of the Indo-European language family did not originate out of nothing. It must have developed, as a result of linguistic changes, from an earlier language, which in turn must have developed from an even earlier language, and so on. It is therefore legitimate to ask whether anything meaningful can be said about the nature of these precursors of Proto-Indo-European. The answer to this question naturally depends on whether relatives from outside the Indo-European language family can be identified and, if so, whether there are enough similarities with Proto-Indo-European to set up hypothetical etymologies that can be used to reconstruct a common proto-language.

The nature of Proto-Indo-European

Before we try to answer the question whether any outer-Indo-European relatives can be identified, we first need to be explicit about what exactly is meant by the term Proto-Indo-European. In theory, the answer is straightforward: what we call Proto-Indo-European should correspond to the proto-language as it was spoken immediately before the first diversification took place that resulted in its eventual dissolution into the Indo-European daughter languages. However, in practice it is not always easy to determine what the proto-language looked like at this stage. In part, this is due to the history of the field of comparative Indo-European linguistics. Beginning with Sir William Jones' observation that Sanskrit bears "a stronger affinity" to Greek and Latin "than could possibly have been produced by accident", the field of Indo-European linguistics initially focused on the evidence from especially

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these three languages, resulting in the classical reconstruction of late 19th century Proto-Indo-European as can be found in, e.g., Brugmann's *Grundriss*. However, at the beginning of the 20th century, two new Indo-European branches were discovered, Tocharian and Anatolian, of which especially the latter had a huge impact on Indo-European studies.

Hittite, the best known Anatolian language, famously provided conclusive evidence in favour of what is today known as the "laryngeal theory". In lexemes where de Saussure had predicted the presence of a *coefficient sonantique*, Hittite turned out to have a consonantal phoneme *h*. Anatolian thereby completely changed the reconstruction of the Proto-Indo-European phonemic system. This, in turn, had important consequences for the reconstruction of Proto-Indo-European morphology. Without the laryngeal theory, current views on, e.g., the nominal ablaut-accent types, would not have existed. It has, however, taken decades before all implications of the laryngeal theory were properly understood and it was fully incorporated into the reconstruction of Proto-Indo-European. Even today, its full impact is sometimes underestimated.²

The Indo-Anatolian hypothesis

Hittite also changed the reconstruction of Proto-Indo-European in another, fundamental way. Although in some respects Hittite seems to be a very archaic Indo-European language, e.g. by preserving verbal ablaut patterns better than any other ancient Indo-European language, in other respects it turned out to be radically different from the other languages. For instance, Hittite lacks a number of important linguistic categories that are present in Greek and Sanskrit, like the feminine gender, the aorist, and the perfect, all of which had always been regarded as core features of Proto-Indo-European. In order to account for these facts, already in the 1920s, only a few years after its decipherment, it was hypothesized that Hittite should not be viewed as another daughter language of Proto-Indo-European, but rather as its sister language (Forrer 1921). This would mean that Hittite and Proto-Indo-European both derive from an even earlier proto-language, which was coined 'Indo-Hittite' by Sturtevant (1933: 30). Since we nowadays know that these special characteristics of Hittite are found in the entire Anatolian branch, it is

² E.g. when scholars fail to recognize that the ultimate consequence of the laryngeal theory is that Proto-Indo-European did not possess a phoneme **a* (Lubotsky 1989, Pronk 2019).

more appropriate to speak about the ‘Indo-Anatolian’ hypothesis, and we will therefore use this term in this book.

For a long time, the prevailing view was that the Indo-Anatolian hypothesis was too radical. It was assumed that the aberrant character of Anatolian was due to a massive loss of categories and other specific innovations within this branch. As a consequence, no need was felt to assign a special status to the Anatolian branch, or to alter the ‘classical’ reconstruction of Proto-Indo-European. Over the last few decades, this point of view has started to shift and nowadays the majority of scholars appear to accept the idea that the first split in the Indo-European language family was between Anatolian and the other branches, which at that point still formed a single language community that underwent common innovations not shared by Anatolian.³ Nevertheless, no consensus has yet been reached on the exact number or nature of these common non-Anatolian innovations, nor on the amount of time that passed between the ‘Proto-Indo-Anatolian’ stage and the ‘classical Proto-Indo-European’ stage, as one may refer to these stages now. In our view, the following cases are all good candidates for cases in which Anatolian has retained an original linguistic feature, whereas the other Indo-European languages have undergone a common innovation:

A. Semantic innovations:

1. Hitt. participle suffix *-ant-*, which forms both active and passive participles, vs. cl.PIE **-e/ont-*, which is only active (Oettinger 2013/14: 156-7).
2. Hitt. *ḫarra-i* ‘to grind, crush’ vs. cl.PIE **h₂erh₃-* ‘to plough’ (Kloekhorst 2008: 9).
3. Hitt. *lāḫu-* ‘to pour’ vs. cl.PIE **leuh₃-* ‘to wash’ (Oettinger 2013/14: 169).
4. Hitt. *mer-* ‘to disappear’ vs. cl.PIE **mer-* ‘to die’ (Kloekhorst 2008: 8).
5. Hitt. *nekutt-* ‘twilight’ vs. cl.PIE **neg^{wh}t-* / **nog^{wh}t-* ‘night’ (Melchert fthc.).
6. Hitt. *šāḫ-* ‘to fill up, to stuff’ vs. cl.PIE **seh₂-* ‘to be satiated’ (Kloekhorst 2008: 9).
7. Hitt. *šai-i* ‘to impress, to prick’ < **sh₁-oi-* vs. cl.PIE **seh₁-* ‘to sow’ (Oettinger 2013/14: 168).
8. Hitt. *ēš^z-zi* ‘to sit’ < **h₁es-* next to *eš^{a(r)}-* ‘to sit down’ < **h₁e-h₁s-* vs. cl.PIE

³ For recent discussions see Kloekhorst (2008: 7-11), Oettinger (2013/2014), Melchert (forthc.) and, more sceptically, Rieken (2009), Eichner (2015) and Adiego (2016).

**h₁e-h₁s-to* ‘to sit’ next to innovated **sed-* ‘to sit down’ (Norbruis fthc.a).

B. Morphological innovations:

9. Anat. common/neuter vs. cl.PIE m./f./n.: innovation of the feminine gender (e.g. Melchert fthc.).
10. Anat. **ti(H)*, **tu-* vs. cl.PIE **tuH*, **tu-* ‘you (sg.)’: spread of obl. stem **tu-* to the nominative (Kloekhorst 2008: 8-9).
11. Anat. **h₁eku-* vs. cl.PIE **h₁eku-o-* ‘horse’: thematization (Kloekhorst 2008: 10).
12. Anat. **iéug-* (later replaced by **iéug-o-*) vs. cl.PIE **iug-ó-* ‘yoke’: thematization (Kloekhorst 2014: 503¹⁹⁶²).
13. Hitt. *huyant-* < **h₂uh₁-ent-* vs. cl.PIE **h₂ueh₁nt-o-* ‘wind’: thematization (Eichner 2015: 17-8).
14. Gen. **-om* (number-indifferent) vs. cl.PIE gen.pl. **-om*: formalization of number distinction (Kloekhorst 2017a).
15. Anat. has no verbal suffix **-e/o-* vs. cl.PIE has **-e/o-* as subjunctive and present marker: development of subjunctive **-e/o-* to a present marker in cl.PIE (and loss of the subjunctive in Anatolian) (Kloekhorst 2017b.).
16. OHitt. conjunctions *šu* and *ta* vs. cl.PIE demonstrative pronoun **so/to-* (Watkins 1963).
17. The element **sm / *si* in pronouns (De Vaan, this volume, XXX-XXX).
18. Hitt. allative case *-a* < **-o* vs. cl.PIE petrified **-o* in the prepositions **pr-o* ‘before’, **up-o* ‘down to’ and **h₂d-o* ‘to’.

C. Sound changes:

19. Anat. **h₂* = **[q:]* and **h₃* = **[q:^w]* vs. cl.PIE **h₂* = **[ḫ]* or **[ʕ]* and **h₃* = **[ḫ^w]* or **[ʕ^w]*: fricativization of uvular stops (Kloekhorst 2018b).
20. Hitt. *nekutt-* < **neg^{w(h)}t-* vs. cl.PIE **nok^wt-* ‘night’ and Hitt. *šakuttai-* < **so^{w(h)}tH-* vs. cl.PIE **so^wtH-* ‘thigh’: voice assimilation (Eichner 2015: 15).
21. Hitt. *amm-* < **h₁mm-* (< pre-PIA **h₁mn-*) vs. cl.PIE **h₁m-* ‘me’: degemination of **mm* to **m* (Kloekhorst 2008: 111²³⁴).

D. Syntactic innovations:

22. The marking of neuter agents (Lopuhaä-Zwakenberg, this volume, XXX-XXX);

23. The syntax of bare interrogatives (Haug & Sideltsev, this volume, XXX-XXX).

There are several other arguments that are promising, though perhaps less forceful than the ones mentioned above or requiring additional investigation before it can be decided whether we are genuinely dealing with an innovation of the ‘classical’ Indo-European languages:

24. Hitt. unreduplicated *hi*-conjugation vs. cl.PIE reduplicated perfect: generalization of reduplication in the perfect (Kloekhorst 2018a) [but the presence of (traces of) unreduplicated perfects in ‘classical’ Indo-European, esp. in Germanic and Balto-Slavic, may indicate that the generalization of reduplication was either not absolute, or not shared by all branches].
25. Hitt. 1pl. *-uen(i)* vs. cl.PIE dual **-ue(-)*: development of a clusivity system to a plural/dual system (Kloekhorst 2017b) [but it cannot be ruled out that Hittite developed the plural ending from an original dual ending].
26. Hitt. *lāhu-* ‘to pour’ < **leh₃u-* vs. cl.PIE **leuh₃₋* ‘to wash’: laryngeal metathesis (Oettinger 2013/14: 169) [but the details of possible laryngeal metathesis in Anatolian are unclear].
27. Anat. **[t:]*, **[ʔt]*, **[t]* vs. cl.PIE **t*, *d*, **dʰ* (**t*, **ʔd*, **d*): consonant shift (Kloekhorst 2016) [but cf. Kümmel, this volume, XXX-XXX, for criticism of Kloekhorst’s scenario].
28. Hitt. *-(e)t* < **-(e)t* vs. cl.PIE **(e)h₁* (instr. ending): development of PIH **-t* > cl.PIE **-ʔd* > **-ʔ* (Kortlandt 2010: 41) [but the exact conditions for the proposed sound change remain unclear].
29. Anat. **mK* vs. cl.PIE **nK* in **h₂emǵʰ-* > **h₂enǵʰ-* ‘to tie, to restrict’ and **temk-* > **tenk-* ‘to solidify, to coagulate’: assimilation (Eichner 2015: 16¹⁶) [but it cannot be ruled out that the assimilation took place independently in different branches; see Pronk 2010 for potential evidence for the **m* of **h₂emǵʰ-* in Greek].
30. Anat. **-ms* vs. cl.PIE **-ns* (acc.pl. ending): assimilation [but it cannot be ruled out that the assimilation took place independently in different branches].
31. Hitt. *e-eš-ši* < **h₁essi* vs. cl.PIE **h₁esi* ‘you are’: degemination of **ss* to **s* (Kloekhorst 2016: 238-40) [but the ending **-si* may have been restored in Hittite].
32. Hitt. *šiu*n < **diéum*/**diéum* vs. cl.PIE **diém* ‘god (acc.sg.)’: ‘Stang’s Law’ [but the Hitt. acc.sg. *šiu*n may have been formed in analogy to

- the nom.sg. *šiuš*].
33. Hitt. *dā-ⁱ* ‘to take’ vs. cl.PIE **deh₃-* ‘to give’: semantic innovation (Norbruis fthc.b) [but the innovation may not be shared by all non-Anatolian IE branches].
 34. Hitt. causatives of the shape **CóC-e(i)* (e.g. *lāki* ‘he knocks down < he makes lie down’ < **lóg^h-e(i)*) vs. cl.PIE causatives of the shape **CoC-eie/o-* (e.g. **log^h-éie/o-* ‘to make lie down’): innovation of the **CoC-eie/o-* causative (Kloekhorst 2018a: 100²⁸) [but this depends on the status of the *dūpiti*-type in the Luwic languages].

Although it is quite possible that not each and every one of the arguments listed above will eventually become generally accepted, it is to our mind very unlikely that items 1-23 will all be refuted and we therefore regard the Indo-Anatolian hypothesis as proven. Moreover, some of the arguments listed here concern significant structural innovations, of which especially the rise of the feminine gender (including the creation of the morphology that goes with it) is something that cannot have happened overnight. Finally, it is important to stress that the Indo-Anatolian hypothesis could be disproven by showing that Anatolian shared its earliest innovations with some but not all other branches of Indo-European. Thus far, no such counterevidence has surfaced. An attempt to identify innovations that Anatolian shared with the western branches of Indo-European, either at an earlier stage or after initial divergence (Puhvel 1994, Melchert 2016), has produced no evidence that would contradict the Indo-Anatolian hypothesis.

In his treatment of the Indo-Anatolian hypothesis, Oettinger (2013/2014) hypothesized that the time gap between Proto-Indo-Anatolian and ‘classical’ Proto-Indo-European may have been some 800 years. To our minds, this is a conservative estimate, and we think that the gap may well have been in the range of 1000-1200 years (depending, however, on the status of Tocharian, cf. the next section). With the recent revolution in the genetic research on ancient DNA, through which prehistoric migrations can be reconstructed in space and time and therefore can be linked to the spread of archaeological cultures and possibly of languages (cf. Haak et al. 2015, Allentoft et al. 2015, Damgaard et al. 2018, Kroonen et al. 2018), it is important to have a good idea about the time depth of a reconstructed language. This is crucial for formulating hypotheses about where that language may have been spoken, which in turn is important when searching for a possible genetic relationship with other language families.

Another important consequence of regarding the Indo-Anatolian hypothesis

as proven is that our view on the shape of the Indo-European proto-language has to change, sometimes drastically. We already mentioned the topic of gender: although for years it had been taken for granted that the Indo-European mother language had three genders, it seems now inevitable that Proto-Indo-Anatolian in fact had only two: common and neuter gender. This two-way opposition is likely to reflect an original distinction between animate and inanimate gender. This is of course relevant knowledge when investigating possible genetic ties with other languages or language families. Another example concerns the phonetic nature of the laryngeals. The phoneme $*h_2$, which at the stage of ‘classical’ Proto-Indo-European may have been a pharyngeal fricative, at the level of Proto-Indo-Anatolian may rather have been a uvular fricative (Weiss 2016) or a uvular stop (Kloekhorst 2018b). Again, this is relevant information when proposals for possible outer-Indo-European cognate sets need to be assessed.

All this means that not only the time gap between Proto-Indo-Anatolian and ‘classical’ Proto-Indo-European may have been significant, but also that the linguistic shapes of these two stages in some aspects differ dramatically. In a way, we may therefore regard Proto-Indo-Anatolian as the first precursor of ‘classical’ Proto-Indo-European. It is for this reason that the first part of the subtitle of this book refers to the Indo-Anatolian hypothesis.

Indo-Tocharian and the Indo-Anatolian hypothesis

‘Classical’ Proto-Indo-European, which above was taken as comprising all non-Anatolian Indo-European languages, can be further divided into several branches that split off in a certain sequence. It seems likely that the Tocharian branch was the second branch to split off after Anatolian, as argued by Peyrot (this volume XXX-XXX) and others before him. Peyrot proposes to use the term Proto-Indo-Tocharian for the stage just preceding this split (with ‘core’ Indo-European for the remaining languages). He rightly points out that arguments in favour of the Indo-Anatolian hypothesis should always be weighed against this Indo-Tocharian stage: if a certain hypothesized post-Anatolian innovation cannot be shown to have affected Tocharian, it cannot in principle be used as an argument for the Indo-Anatolian hypothesis, because the innovation could also have taken place in post-Tocharian ‘core’ Indo-European.

In theory, this concept should be rigorously applied: for each linguistic innovation it should be determined when it can be dated in relation to all nodes in the family tree. In practice, however, the exact order of the splits in the Indo-European family tree is uncertain, especially after the split of

Tocharian, and precise dating of innovations is often impossible. Therefore, it remains useful to operate with larger, less specific entities with relatively vague names like ‘classical’ Proto-Indo-European (all or most Indo-European languages except Anatolian) or ‘core’ Indo-European (all or most IE languages except Anatolian and Tocharian).

It is not fully clear to what extent Tocharian participated in all the post-Anatolian innovations that were listed above: cf. Peyrot, this volume XXX, who points out the fact that e.g. **mer-* (innovation no. 4 in the list above) is unattested in Tocharian, as a result of which it cannot be determined whether the semantic development of ‘to disappear’ to ‘to die’ was a post-Anatolian or a post-Tocharian innovation. Similar reservations apply to other post-Anatolian innovations, e.g. in the word for ‘yoke’ (no. 12), the genitive plural ending **-om* (no. 14), the element **sm / *si* in pronouns (no. 17), voice assimilation (no. 20) etc. Therefore, the time gap between Proto-Indo-Anatolian and Proto-Indo-Tocharian may have been less than the 1000-1200 years proposed above. There are, however, still many cases for which it is clear that Tocharian did participate in the post-Anatolian innovations (e.g. ‘you (sg.)’ (no. 10), ‘horse’ (no. 11), ‘wind’ (no. 13)), and since these include some major ones (e.g. the development of the feminine gender (no. 9)), it remains attractive to assume that the Anatolian-Tocharian time gap is substantial, and we would assign some 800-1000 years to it. The relatively large number of shared Indo-Tocharian innovations contrasts with the number of plausible post-Tocharian, ‘core’ Indo-European innovations, which, according to our current knowledge, is “not overwhelming” (Peyrot, this volume XXX). It therefore seems unlikely that Proto-Indo-Tocharian and ‘core’ Proto-Indo-European were separated by more than a few centuries.

Internal reconstruction

Another way of reconstructing one or more precursor stages of Proto-Indo-European, without taking into account language material from outside the Indo-European family, is internal reconstruction. Like any other language, also Proto-Indo-European (or Proto-Indo-Anatolian) contained in its grammar irregularities and other features that may be explained as the result of a relatively recent development. For instance, the word for ‘hundred’ can be reconstructed as **h₁kmtóm* on the basis of e.g. Skt. *śatám*, Gr. *ἑκατόν*, Lat. *centum*, OE *hund*, Lith. *šimtás*. Nevertheless, on the basis of the assumption that ‘hundred’ is derived from the numeral ‘ten’ (**dék-m*, cf. Skt. *dáśa*, Gr. *δέκα*, Lat. *decem*, Goth. *taihun*, etc.), it is usually assumed that **h₁kmtóm* goes back to an earlier **dkmtóm* (with **d > *h₁*, cf. Garnier 2014).

This latter form, which is the result of internal reconstruction, must thus be assigned to a precursor stage of Proto-Indo-European. In some cases, we can even distinguish several subsequent precursor stages. Take, for instance, the phenomenon of ablaut: already Brugmann assumed different layers in the prehistory of Proto-Indo-European to account for the PIE ablaut alternations (see also Kortlandt, this volume XXX-XXX).

Of course, on the basis of internal reconstruction alone it is impossible to reconstruct all details of these different precursors. Nevertheless, we view internal reconstruction as a vital way to penetrate as deeply into the prehistory of Proto-Indo-European as possible, which is a prerequisite before one can start with external comparison.

External comparison

When it comes to comparing the Indo-European language family to one or more non-Indo-European languages and/or language families, several suggestions have been made for identifying possible relatives. Some of these suggestions include large macro-families, like the 'Nostratic' family, which is usually thought to include Indo-European, Uralic, Kartvelian, Altaic, Japonic and Koreanic (the latter three possibly forming a single 'Transeurasian' family), but to which sometimes Afroasiatic, Dravidian, Chukotko-Kamchatkan, Eskimo-Aleut, and other languages or language families are added as well (Pedersen 1903, Illich-Svitych 1971-1984, Starostin 1989, Dolgopolsky 2008, Bomhard 2008). Although we are not principally opposed to the concept of such macro-families, we think it is methodologically preferable to start with one-to-one comparisons in order to be able to reconstruct deeper in time step by step.

The Indo-Uralic hypothesis

Already in the 19th century, the linguistic similarities between Indo-European and Uralic led to the hypothesis that the Indo-European language family may be related to Uralic (see Kallio, this volume XXX-XXX about the earliest Indo-Uralicists). We believe that this is still a valid point of view. The similarities are found both in the morphology and in the lexicon. Kortlandt (2002) listed no fewer than 27 morphemes of Indo-European and Uralic that are phonetically so similar to each other that he regards them as "definitely Indo-Uralic". This list includes pronominal morphemes (see also Bjørn, this volume XXX-XXX), case markers (see also Bauhaus, this volume XXX-XXX), as well as verbal and nominal suffixes (see also Lubotsky, this volume XXX-XXX). The lexical similarities between Indo-European and Uralic are often attributed

to borrowing from Indo-European into Uralic (cf. Koivulehto 1994, 2001, 2003), but there are reasons to believe that at least some lexical correspondences are due to inheritance from a common source. The oldest layer of shared lexicon consists of pronouns, nouns and verbs belonging to the part of the vocabulary that is least prone to being borrowed (Napol'skix 1997: 147-8, Helimski 2001, Kümmel, this volume XXX-XXX). This implies that the similarities are due to shared ancestry and not to borrowing.

If Indo-European and Uralic are indeed related to each other, both should go back to a common ancestor, Proto-Indo-Uralic, which can then be regarded as a precursor of Proto-Indo-European (and of Proto-Indo-Anatolian). This is the reason why the second part of the subtitle of this book refers to the Indo-Uralic hypothesis.

Although we regard the Indo-Uralic hypothesis as very likely to be correct, this does not mean it is easy to start reconstructing Proto-Indo-Uralic. There is at this moment no consensus on the relationship between the phoneme inventories of the two language families (see Klemenčič, this volume XXX-XXX, on Čop's attempts to find correspondences, and Kümmel, this volume XXX-XXX and Kroonen, this volume XXX-XXX, on possible correspondences in the consonant system), nor on the shared lexicon (Illich-Svitych 1971-1984, I: 6-37, Helimski 2001: 196³⁹), on the morphological relationships (see Zhivlov, this volume XXX-XXX for a possible connection between nominal paradigms in Indo-European and Uralic), or on connections in other parts of grammar (see Lühr, this volume XXX-XXX for a possible syntactic connection). This difficulty may be partly explained by the possibility that, after the dissolution of Indo-Uralic, Indo-European has undergone relatively strong substrate influence from North Caucasian (see Kortlandt 2018, Bomhard, this volume XXX-XXX).

Another question regarding Proto-Indo-Uralic that remains to be answered is where and when it was spoken. Post-Anatolian Proto-Indo-European vocabulary is thought to reflect a Chalcolithic stage of development, while Proto-Uralic vocabulary represents a Mesolithic society (Janhunen 2009). This does not mean that Proto-Uralic must be dated much earlier than Proto-Indo-European. The difference is more plausibly connected with the geographic area in which the two proto-languages were spoken. There appears to be consensus among Indo-Europeanists that Proto-Indo-European was spoken in the Pontic-Caspian steppes in the middle of the fourth millennium BCE. Proto-Indo-Anatolian can perhaps be dated to the middle or late fifth millennium BCE in the same region (Anthony & Ringe 2015). The Proto-Uralic homeland was probably located near the Ural mountains, either in the west

between the Volga river and the Central Ural mountains (Häkkinen 2009), or to their east, in the vicinity of the rivers Ob and Yenisei (Napol'skix 1997: 135, Janhunen 2009). Traditionally, the time-depth of Proto-Uralic is estimated to be around 4000 BCE (Napol'skix 1997, Helimski 2001), but a more shallow date of approximately 3000 BCE (Janhunen 2009) or 2000 BCE (Kallio 2006, Häkkinen 2009) now seems to be more plausible. There is thus a gap of up to 2500 years between Proto-Indo-Anatolian and Proto-Uralic.

If Indo-Anatolian was indeed influenced by a North Caucasian substrate, it stands to reason that its ancestor moved into the steppes north of the Caucasus from somewhere else. The Uralic connection suggests that this somewhere else must be sought more to the north and/or the east. As for the question when Proto-Indo-Uralic was spoken, only a very rough estimate is possible on the basis of the rather limited number of etymological correspondences between the basic lexicons of Indo-European and Uralic. The relatively low number of probable cognates suggests that at least a couple of millennia must have passed between the dissolution of Proto-Indo-Uralic and its daughter languages Proto-Indo-Anatolian and Proto-Uralic (Napol'skix 1997: 143), even if we take into account the temporal gap of up to 2500 years between Proto-Indo-Anatolian and Proto-Uralic. Proto-Indo-Uralic would then have been spoken in or around the 7th millennium BCE.

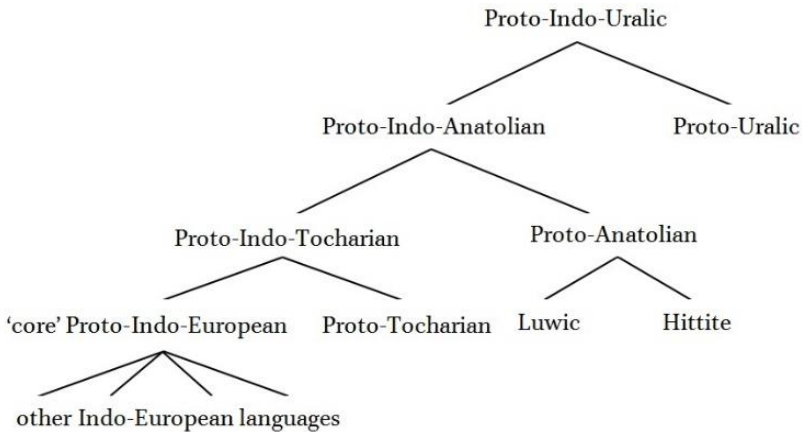


Fig. 1: The precursors of Proto-Indo-European.

We can conclude that 'core' Proto-Indo-European, consisting of the Brugmannian branches of Indo-European, had a number of precursors. Its direct ancestor was Proto-Indo-Tocharian, to which it was very similar. A more distant, but still clearly recognizable ancestor was Proto-Indo-Anatolian,

which seems to have been spoken at least a thousand years earlier. Finally, there was a distant Proto-Indo-Uralic ancestor, with which ‘core’ Proto-Indo-European shared only a limited number of words and a few dozen grammatical characteristics and which must have been spoken at least several millennia before Proto-Indo-Anatolian. The papers in this volume reflect the state of the art in the research into these ancestors of ‘core’ Proto-Indo-European.

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